REMARKS

This application has been carefully reviewed in light of the Office Action dated June 1, 2004. Claims 32 and 97 have been amended. Claims 32-68 and 97 are now pending. Applicants reserve the right to pursue the original claims and other claims in this and other applications. Applicants respectfully request reconsideration of the above-referenced application in light of the amendments and following remarks.

Claims 32-61, 64-68, and 97 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Narwankar. The rejection is respectfully traversed.

The claimed invention relates to the method of forming a capacitor structure by annealing a top conducting layer of the top electrode. Annealing the top conducting layer of the top electrode results in a capacitor structure with reduced capacitor current leakage relative to a conventionally formed structure (Applicants' specification, pg. 4, lines 18-20).

As such, independent claim 32 recites a method of forming a capacitor comprising "forming a bottom conducting layer, wherein said bottom conducting layer forms a bottom electrode; forming a dielectric layer over the bottom conducting layer; forming a top conducting layer over the dielectric layer, wherein said top conducting layer forms a top electrode; and annealing a top conducting layer of the top electrode with an oxidizing gas anneal." (emphasis added).

Similarly, independent claim 97 recites a method of forming a capacitor in a semiconductor device comprising "forming a bottom conducting layer, wherein said bottom conducting layer forms a bottom electrode; forming a dielectric layer over the bottom conducting layer; forming a top electrode over said dielectric layer, said top electrode comprising at least one top conducting layer; and annealing said at least one

top conducting layer of said top electrode with an oxidizing gas anneal." (emphasis added).

Applicants respectfully submit that Narwankar does not teach annealing the top conducting layer of the top electrode. Claims 32 and 97 have been amended to emphasize this distinction between the cited reference and Applicants' claimed invention.

There is no support in Narwankar for annealing the top conducting layer of the top electrode. Narwankar discloses that, "[t]he upper oxygen-containing layer 610 and the second upper metal layer 612 together form the upper electrode 615 for the capacitor structure 650." (Col. 11, lines 33-35) (emphasis added). Thus, Narwankar's top electrode comprises at least two different conducting layers: layer 610 and 612. Narwankar's top conducting layer 612 of the upper electrode 615, however, is not annealed. As a result, Narwankar does not teach Applicants' claimed oxidizing gas anneal of the top conducting layer of the top electrode.

Narwankar discloses forming a first upper metal layer 608 on the insulating layer 606 (Col. 10, lines 61-62). The "first upper metal layer 608 is then treated or annealed in an oxygen-containing environment, resulting in the upper oxygen-containing layer 610, as shown in FIG. 6e." (Col. 11, lines 4-6) (emphasis added). Next, a "second upper metal layer 612 is then deposited onto the upper oxygen containing layer 610." (Col. 11, lines 16-17) (emphasis added). As stated above, Narwankar's top conducting layer of the top electrode is not annealed since the second metal layer 612 is not annealed, and the second metal layer 612 is part of Narwankar's upper electrode 615.

For at least the foregoing reasons, independent claims 32 and 97 are allowable over Narwankar. Claims 33-61 and 64-68 depend from claim 32 and are allowable along with claim 32. Withdrawal of the § 102(e) rejection is respectfully solicited.

Claims 62 and 63 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Narwankar. The rejection is respectfully traversed.

Claim 62 depends from claim 32 and is similarly allowable along with claim 32 for at least the reasons provided above. Claim 63 depends from claim 62 which depends from claim 32, both claims are similarly allowable along with claim 32 for at least the reasons provided above. In particular, Narwankar fails to disclose or suggest annealing the top conducting layer of the top electrode. Narwankar's top electrode 615 comprises layers 610 and 612. Layer 612 is not annealed. As a result, Narwankar does not teach or suggest claim 32 from which claims 62 and 63 depend from. Withdrawal of the § 103(a) rejection is respectfully solicited.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Dated: July 21, 2004

Respectfully submitted,

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